REMARKS

Reconsideration of the application is requested in view of the amendments above and the remarks below. Claims 37 and 39 were amended to address wording issues.

Rejection of Claims 37-39 Under 35 USC 112

The Office Action rejected Claims 37-39 under 35 USC 112, second paragraph, on the grounds that certain terms in the claims were duplicative. In view of the modifications above, the rejection is believed overcome. Reconsideration is requested.

Rejection of Claims 31-39 Under 35 USC 102

The Office Action rejected Claims 31-39 under 35 USC 102 over U.S. Pat. No. 5,248,450 (Metzner) or U.S. Pat. No. 5,990,143 (Ludwig). The rejection should be withdrawn in view of the amendments above and the remarks below.

A. Rejection Under 35 USC 102 Over Metzner

In view of the modifications above, the literal teachings of Metzner do not disclose every element of Applicants' invention. It is well settled that in order for a prior art reference to anticipate claim, the reference must disclose each and every element of claim with sufficient clarity to prove its existence in prior art. The disclosure requirement under 35 USC 102 presupposes knowledge of one skilled in art of claimed invention, but such presumed knowledge does not grant license to read into a prior art reference teachings that are not there. See *Motorola Inc. v. Interdigital Technology Corp.* 43 USPQ2d 1481 (1997 CAFC). It is also well settled that when a claimed invention is not identically disclosed in a cited reference under 35 U.S.C. 102, but instead requires the skilled artisan to pick and choose among a number of different options disclosed by the reference, then the reference does not anticipate the claimed invention (See *Mendenhall v. Astec Industries*, Inc. 13 USPQ2d 1913, 1928 (Tenn, 1988) *affd,* 13 USPQ2d 1956 (Fed. Cir. 1989)).

Applicants' invention relates to an aqueous system comprising: (A) a component selected from the group consisting of hydrolysis-sensitive fungicidal active compounds, hydrolysis-sensitive bactericidal active compounds, hydrolysis-sensitive

insecticidal active compounds, and mixtures thereof, in which the active compounds have a functional group N-S-CCl_2X, wherein X represents halogen, a C_1-C_4 alkyl, or a halogen-substituted C_1-C_4 alkyl, and (B) one or more binders having a pH that is less than or equal to 7. The binders are selected from the group consisting of (i) alkyd resins based on vegetable oils and (ii) acrylate dispersions. In one embodiment, Applicants' invention relates to a method for stabilizing a component of hydrolysis-sensitive active compounds in an aqueous system. In another embodiment, Applicants' invention relates to a method for protecting an aqueous system against microbial infestation. In another embodiment, Applicants' invention relates to a binder including a component selected from the group consisting of (i) alkyd resins based on vegetable oils and (ii) acrylate dispersions and having a pH $\leq$ 7 and particular hydrolysis-sensitive active compounds.

Before Applicants' invention, it was known that in aqueous systems hydrolysis-sensitive compounds as dichlofluanid would become destroyed after a few hours. According to the present invention, it was surprisingly found that fungicidal, bactericidal and/or insecticidal active compounds, which are sensitive to hydrolysis due to a functional N-S-CCl_2X group, can be stabilized in aqueous systems by using specific binders consisting of alkyd resins based on vegetable oils and/or acrylate dispersions which have a pH of 7 or less. That means these binders must be neutral or acidic.

Metzner discloses an agent or concentrate for the preservation of wood and wood materials which comprises a triazole fungicide of a specific formula, a pyrethroid insecticide and at least one constituent selected from the group consisting of a solvent, diluent, organic chemical binder, fixing agent, plasticizer, processing aid, dye, pigment, dye mixture and pigment mixture. As stated in column 3, lines 4 - 16, the organic chemical binders can consist of acrylate resins and alkyd resins. According to the disclosure of col. 4, lines 59-68 to col. 5, lines 1-5, which was relied on by the Examiner, Metzner teaches that from 0 to 50 % by weight of the 1-aryl-3-hydroxy-3-alkyl-4-(1,2,4-triazole-1-yl)-butane derivative can be replaced by the same quantity by weight of another fungicide, preferably dichlofluanid, methyleuparen,

azaconazole, propiconazole, tributyltin naphthenate and/or carbendazim. Then, in col. 5, lines 7-8, which were also pointed out by the Examiner, it is said that "[t]he latter compound is used in particular in aqueous formulations." From this the skilled artisan would understand that carbendazim is used in particular in aqueous formulations (in accordance with the teaching of Examples 9 and 10 of Metzner which are water-dilutable and which contain carbendazim). The literal teachings of Metzner would not have described a teaching to use dichlofluanid in aqueous formulations. This position is confirmed by the teaching of Examples 1 to 3 of Metzner in which dichlofluanid is employed in an organic solvent together with alkyd resins which do not belong to the water-soluble types of anionic or cationic alkyd resins.

In other words, Metzner does not disclose an aqueous system containing a combination of a hydrolysis-sensitive compound containing a N-S-CCl_2X group and an alkyd resin or acrylate binder having a pH value of 7 or less. Nothing is said in this reference about the pH-value of the employed alkyd resins. There is no hint in Metzner that discloses how hydrolysis-sensitive compounds which contain a N-S-CCl_2X group can be stabilized in aqueous systems. The literal teachings of Metzner do not teach that the hydrolysis-sensitive compounds must be employed together with specific alkyd resin binders which have a pH of less than 7. For the above reasons, Applicants submit that Metzner does not anticipate the present invention. Reconsideration is requested.

The Office Action cited *In re Sivaramakrishnan*, 213 USPQ 441 (CCPA 1982) and Ex Parte A, 17 USPQ2d 1716 (BdPat App &Int 1990) to support its position. These cases are not on point, because the evidentiary facts considered in these cases and the facts here are different. With respect to *Ex Parte A*, the Board of Appeals & Interferences concluded that claims directed to compositions, in which the Appellants had acknowledged that the synthetic procedures disclosed in the prior art reference at issue enabled the preparation of the compound. This is not the case. As Applicants have previously argued, the literal teachings of Metzner do not teach the claimed composition. Metzner does not provide meaningful guidelines

that would have allowed one of ordinary skill in the art, an artisan without inventive capacity, to make or practice Applicants' invention. With respect to *In re Sivaramakrishnan*, the U.S. Court of Customs and Patent Appeals reviewed a situation in which the cited prior art was not considered speculative. By contrast, Metzner is a speculative reference. The broad, general teachings of Metzner lack the details necessary to place Applicants' invention in the possession of the public. Reconsideration is requested.

B. Rejection Under 35 USC 102 Over Ludwig

Ludwig also does not anticipate Applicants' invention. Ludwig discloses water-based solvent and emulsifier-free microbicidal active compound formulations based on azole fungicides and at least one quaternary ammonium fungicide of a specific formula. Ludwig discloses a composition that is prepared by combining at least one azole fungicide in the form of the free base and at least one quaternary ammonium fungicide (See Col. 2, ll. 16-67). The weight ratio of azole fungicide to quaternary ammonium fungicide is preferably 1:99 to 99:1 (Col. 3, ll. 23-24). Ludwig teaches that to prepare aqueous formulations, the active compounds are incorporated individually or as an active compound combination, such as in the form of powders, granules, pastes or concentrated solutions, suspensions or emulsions, into water by simple mixing, and are then present in the form of an aqueous suspension, solution or emulsion (Col. 3, ll. 26-31).

Such teachings do not anticipate Applicants' invention encompassed by new Claims 31-39. Ludwig disclosing a composition that is prepared by combining at least one azole fungicide in the form of the free base and at least one quaternary ammonium fungicide does not anticipate Applicants' aqueous systems or the other embodiments encompassed by new Claims 31-39. Similarly, Ludwig teaching that the weight ratio of azole fungicide to quaternary ammonium fungicide is preferably 1:99 to 99:1 or that to prepare its aqueous formulations, the active compounds are incorporated individually or as an active compound combination into water by simple mixing does not disclose Applicants' invention. Even if Ludwig discloses fluorfolpet as a possible active ingredient, it discloses such an active ingredient as one of many

"mixing partners" at Column 5, lines 55+, so that one of ordinary skill in the art would have had to pick and choose from many possibilities and would not possess Applicants' invention.

It is noteworthy that Ludwig discloses that many other compounds such as synthetic resins or acrylic resins can be added to the formulations. Further, Ludwig mentions that numerous specific mixing partners sulfenamides (as dichlofluanid) are mentioned can be used. There is no disclosure of the specific combination of the presently claimed combination of hydrolysis-sensitive compounds and the specific alkyd resin and/or acrylate dispersion binders. As can be seen from Examples 1 to 4, Ludwig discloses only combinations of specific quaternary ammonium fungicides with tebuconazole. The literal teachings of Ludwig simply do not disclose every element of the claimed invention in as complete detail as is contained in Claims 31-39. Reconsideration is requested.

Rejection of Claims 31-39 Under 35 USC 103

The Office Action rejected Claims 31-39 under 35 USC 103 over Metzner or Ludwig. In view of the amendments above, the remarks below are directed to new Claims 31-39.

A. Rejection Under 35 USC 103 over Metzner

The rejection under Metzner should be withdrawn because one of ordinary skill in the art following the teachings of Metzner would not have been motivated to use the specific combination of binders with the aforementioned active compounds and expect the results Applicants' have obtained.

It is well-established that in a sense, virtually all inventions are combinations of old elements (*In re Rouffet*, 47 USPQ2d 1453, 1457), and that the USPTO may often find every element of a claimed invention in the prior art. *In re Rouffet*, 47 USPQ2d 1457. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. *In re Rouffet* at 1457. It is also well established that to establish a *prima facie* case of obviousness, the USPTO must satisfy all of the following requirements. First, the prior art relied

upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or to combine references. *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Second, the proposed modification must have had a reasonable expectation of success, as determined from the vantage point of one of ordinary skill in the art at the time the invention was made. *Amgen v. Chugai Pharmaceutical Co.* 18 USPQ 2d 1016, 1023 (Fed Cir, 1991), *cert. denied* 502 U.S. 856 (1991). Third, the prior art reference or combination of references must teach or suggest all of the limitations of the claims. *In re Wilson*, 165 USPQ 494, 496, (CCPA 1970).

In view of the modifications above, the rejection does not establish a *prima facie* case of obviousness. Applicants' invention relates to an aqueous system comprising (A) hydrolysis-sensitive active compounds having a functional group N-S-CCl_2X and (B) one or more binders having a pH that is less than or equal to 7. The binders are selected from the group consisting of (i) alkyd resins based on vegetable oils and (ii) acrylate dispersions. In one embodiment, Applicants' invention relates to a method for stabilizing a component of hydrolysis-sensitive active compounds in an aqueous system. In another embodiment, Applicants' invention relates to a method for protecting an aqueous system against microbial infestation. In another embodiment, Applicants' invention relates to a binder including a component selected from the group consisting of (i) alkyd resins based on vegetable oils and (ii) acrylate dispersions and having a pH $\leq$ 7 and particular hydrolysis-sensitive active compounds.

As mentioned above, before Applicants' invention, it was known that in aqueous systems, hydrolysis-sensitive compounds as dichlofluanid would become destroyed after a few hours. According to the present invention it was surprisingly found, that fungicidal, bactericidal and/or insecticidal active compounds, which are sensitive to hydrolysis due to a functional N-S-CCl_2X group, can be stabilized in aqueous systems by using specific binders consisting of alkyd resins based on vegetable oils and/or acrylate dispersions which have a pH of 7 or less. That means

these binders must be neutral or acidic.

Applicants' invention is based on the surprising discovery that active hyrolysis-sensitive compounds can be stabilized in aqueous systems by using specific binders. Examples of preferred binders include alkyd/maleic anhydride copolymers, alkyd/modified linseed oil, alkyd resins, alkyd resin/soya oil, and linseed oil in combination with an acrylate dispersion (Spec., p. 2, ll. 14-16). Applicants' aqueous systems preferably contain from about 0.001 to 90 percent by weight of an active compound and from 3 to 80 percent by weight of binder (Spec., p.2, ll. 21-25). Preferred examples of water-based systems include water-based paints, e.g., emulsion paints and antifouling paints, as well as wood preservatives such as wood preservative varnishes and primers (Spec., p. 2, ll. 27-29). Applicants' aqueous systems are advantageous over known systems in that the active compounds are stable for long periods against hydrolysis and decomposition, both in an acidic and in a neutral medium (Spec., p. 3, ll. 7-9).

Metzner does not provide any meaningful guidelines that would have motivated one of ordinary skill in the art to modify Metzner and make or practice Applicants' invention. Without the benefits provided by Applicants' disclosure, one of ordinary skill in the art would not have had reasons to make or practice Applicants' invention. Metzner teaches numerous possible combinations and does not have teachings that would have made one of ordinary skill in the art following the teachings of Metzner to selectively modify Metzner and arrive at Applicants' invention. Metzner lacks the suggestive details required by 35 USC 103. Accordingly, Applicants request that the USPTO acknowledge the differences between their invention and Metzner, withdraw the rejection, and acknowledge that Claims 31-39 comply with 35 USC 103. Reconsideration is requested.

B. Rejection Under 35 USC 103 over Ludwig

The rejection under Ludwig also falls by similar reasoning. Ludwig discloses waterbased solvent and emulsifier-free microbicidal active compound formulations based on azole fungicides and at least one quaternary ammonium fungicide of a specific formula. Ludwig discloses a composition that is prepared by combining at

least one azole fungicide in the form of the free base and at least one quaternary ammonium fungicide (See Col. 2, ll. 16-67). The weight ratio of azole fungicide to quaternary ammonium fungicide is preferably 1:99 to 99:1 (Col. 3, ll. 23-24). Ludwig teaches that to prepare aqueous formulations, the active compounds are incorporated individually or as an active compound combination, such as in the form of powders, granules, pastes or concentrated solutions, suspensions or emulsions, into water by simple mixing, and are then present in the form of an aqueous suspension, solution or emulsion (Col. 3, ll. 26-31).

One of ordinary skill in the art following the teachings of Ludwig would have prepared a composition by combining at least one azole fungicide in the form of the free base and at least one quaternary ammonium fungicide and would not have arrived at Applicants' aqueous system or the other embodiments encompassed by new Claims 31-39. Similarly, the other teachings of Ludwig would have motivated one of ordinary skill in the art following the teachings of Ludwig to modify Ludwig, make or practice inventions that are different from Applicants' invention encompassed by Claims 31-39. Ludwig teaches numerous compounds such that one of ordinary skill in the art would have had to pick and choose from many possibilities and would not have information that would have led the artisan to Applicants invention and expect the results Applicants have obtained.

In view of the foregoing amendments and remarks, allowance of Claims 31-39 is earnestly requested.

Respectfully submitted,

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VERSION SHOWING MARKED-UP CHANGES

37. A method for protecting an aqueous system against microbial infestation comprising incorporating into the aqueous system

(A) a component selected from the group consisting of ~~hydrolysis-sensitive fungicidal active compounds~~, hydrolysis-sensitive fungicidal active compounds, hydrolysis-sensitive bactericidal active compounds, hydrolysis-sensitive insecticidal active compounds, and mixtures thereof, wherein the active compounds have a functional group N-S-CCl_2X, wherein X represents halogen, a C_1-C_4 alkyl, or a halogen-substituted C_1-C_4 alkyl, and

(B) one or more binders having a pH $\leq$ 7 and selected from the group consisting of (i) alkyd resins based on vegetable oils and (ii) acrylate dispersions, and thereby stabilizing the system.

39. A binder comprising:

(A) a component selected from the group consisting of (i) alkyd resins based on vegetable oils and (ii) acrylate dispersions and having a pH $\leq$ 7 and

(B) a component selected from the group consisting of ~~hydrolysis-sensitive fungicidal active compounds~~, hydrolysis-sensitive fungicidal active compounds, hydrolysis-sensitive bactericidal active compounds, hydrolysis-sensitive insecticidal active compounds, and mixtures thereof, wherein the active compounds have a functional group N-S-CCl_2X, wherein X represents halogen, a C_1-C_4 alkyl, or a halogen-substituted C_1-C_4 alkyl.--

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